

## ABSTRACT

5

An optical power distribution system and method permits multiple power consuming devices to be selectively supplied with power using a single fiber optic line. In a described embodiment, multiple electrical power consuming well tools are interconnected to a fiber optic line extending into a well. Control modules are interconnected between the fiber optic line and the well tools. When a particular optical wavelength band is transmitted through the fiber optic line, a corresponding one of the control modules causes the respective well tool to be selected for electrical power to be supplied thereto.